FIG. 1

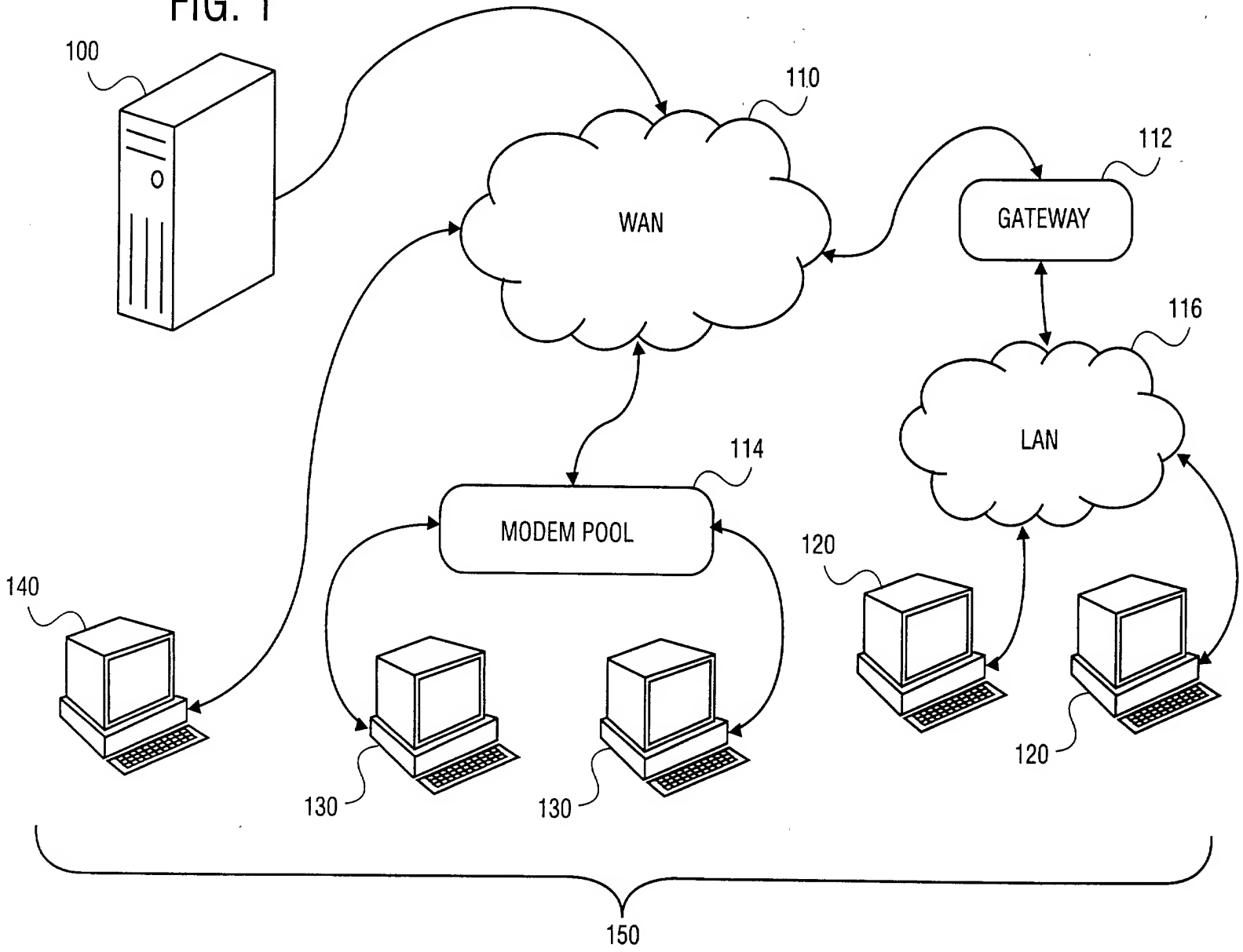
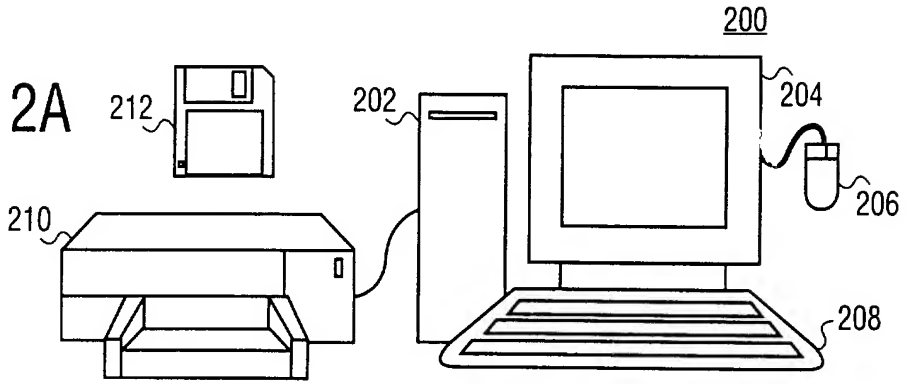

100
110
WAN
112
GATEWAY
116
LAN
114
MODEM POOL
140
120
120
130
130
150

FIG. 2A


200
212
202
204
206
210
208

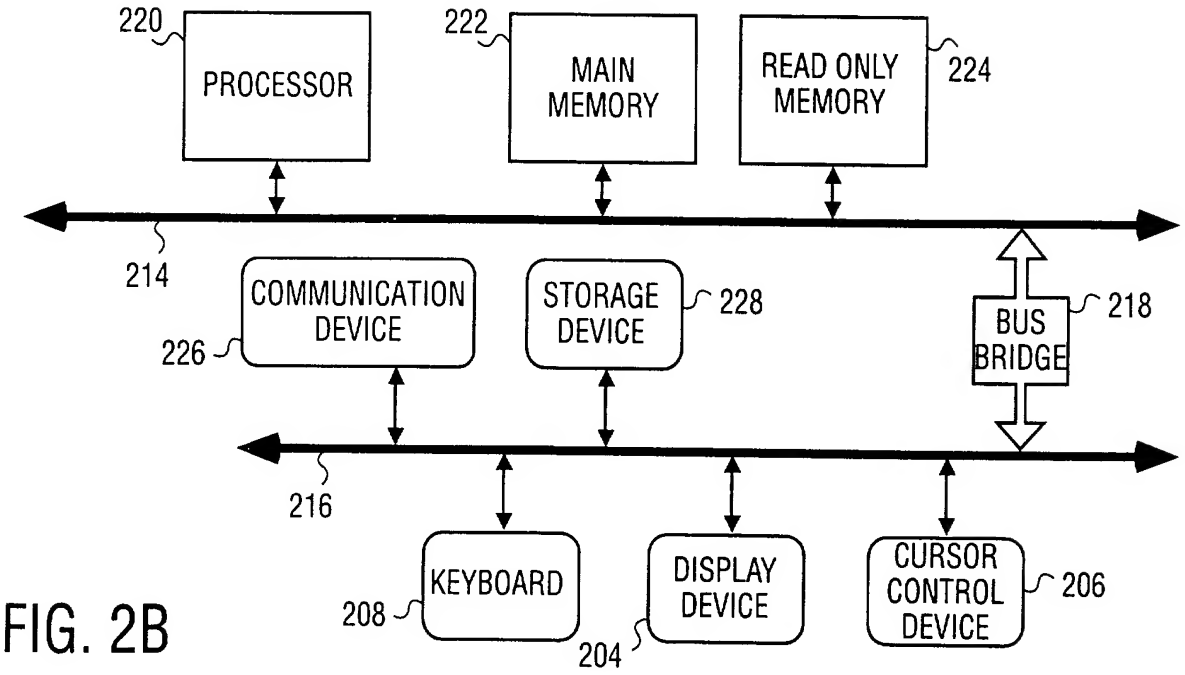

220
PROCESSOR
222
MAIN MEMORY
READ ONLY MEMORY
224
214
COMMUNICATION DEVICE
226
STORAGE DEVICE
228
BUS BRIDGE
218
216
KEYBOARD
208
DISPLAY DEVICE
204
CURSOR CONTROL DEVICE
206

FIG. 2B

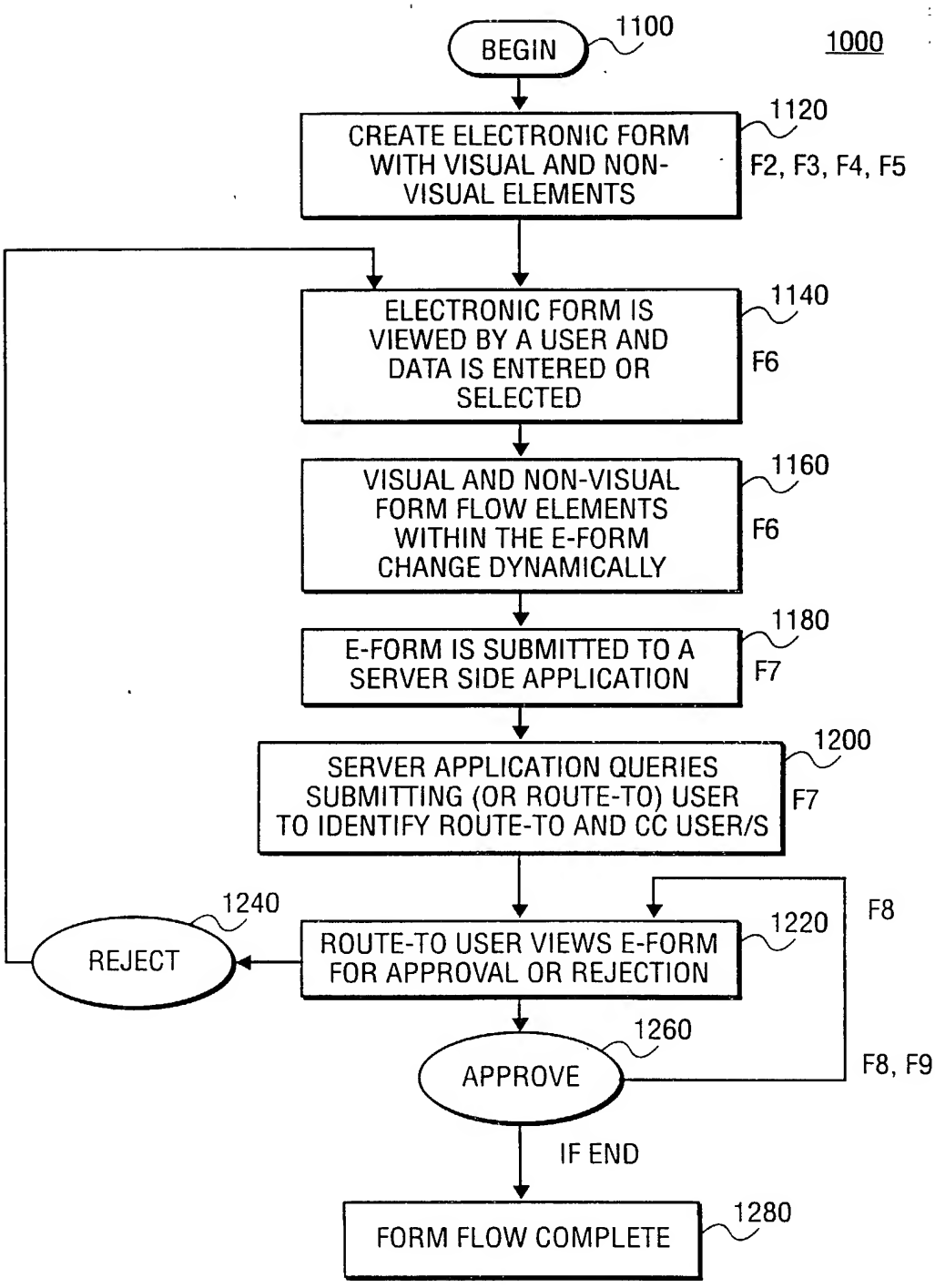

BEGIN
1100
1000
CREATE ELECTRONIC FORM WITH VISUAL AND NON-VISUAL ELEMENTS
1120
F2, F3, F4, F5
ELECTRONIC FORM IS VIEWED BY A USER AND DATA IS ENTERED OR SELECTED
1140
F6
VISUAL AND NON-VISUAL FORM FLOW ELEMENTS WITHIN THE E-FORM CHANGE DYNAMICALLY
1160
F6
E-FORM IS SUBMITTED TO A SERVER SIDE APPLICATION
1180
F7
SERVER APPLICATION QUERIES SUBMITTING (OR ROUTE-TO) USER TO IDENTIFY ROUTE-TO AND CC USER/S
1200
F7
ROUTE-TO USER VIEWS E-FORM FOR APPROVAL OR REJECTION
1220
F8
REJECT
1240
APPROVE
1260
F8, F9
IF END
FORM FLOW COMPLETE
1280

FIG. 3

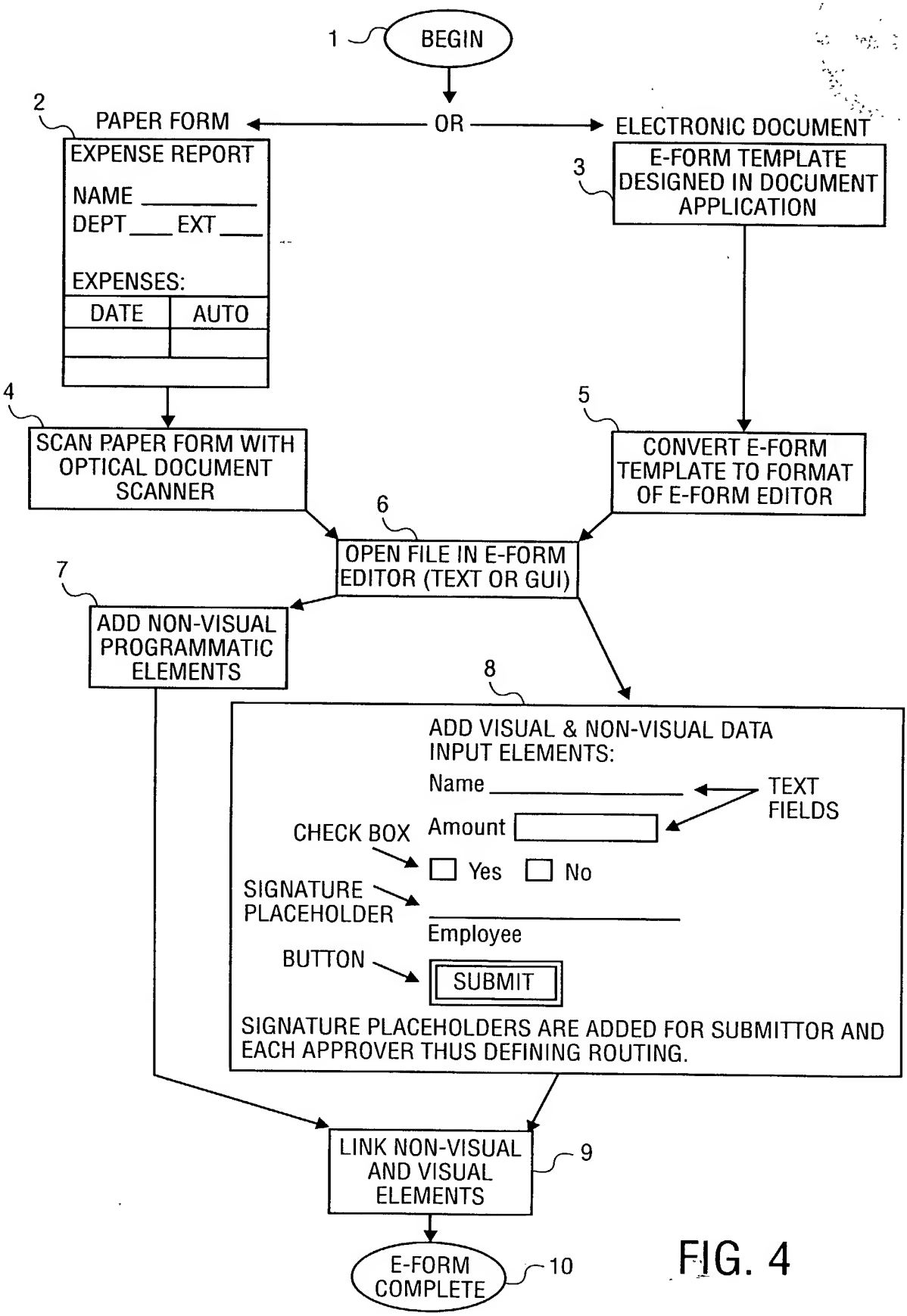

1
BEGIN
OR
2
PAPER FORM
EXPENSE REPORT
NAME _____
DEPT ___ EXT ___
EXPENSES:
DATE
AUTO
ELECTRONIC DOCUMENT
3
E-FORM TEMPLATE DESIGNED IN DOCUMENT APPLICATION
4
SCAN PAPER FORM WITH OPTICAL DOCUMENT SCANNER
5
CONVERT E-FORM TEMPLATE TO FORMAT OF E-FORM EDITOR
6
OPEN FILE IN E-FORM EDITOR (TEXT OR GUI)
7
ADD NON-VISUAL PROGRAMMATIC ELEMENTS
8
ADD VISUAL & NON-VISUAL DATA INPUT ELEMENTS:
Name _____
TEXT FIELDS
CHECK BOX
Amount
Yes
No
SIGNATURE PLACEHOLDER
Employee
BUTTON
SUBMIT
SIGNATURE PLACEHOLDERS ARE ADDED FOR SUBMITTOR AND EACH APPROVER THUS DEFINING ROUTING.
LINK NON-VISUAL AND VISUAL ELEMENTS
9
E-FORM COMPLETE
10

FIG. 4

NON-VISUAL PROGRAMMATIC ELEMENTS

SHOW OR HIDE SIGNATURE LINE & LABEL BASED ON VALUE OF NUMERIC FIELD

```
function ShowSig() {
  var da = this.getField("dollar.amount");
  var li = this.getField("director.signature.line");
  var la = this.getField("director.signature.line.label");

  if (da.value > 2000) {
    li.hidden = false;
    la.hidden = false;
  }
  else {
    li.hidden = true;
    la.hidden = true;
  }
}
ShowSig();
```

7A

FIG. 5

10082533.052902

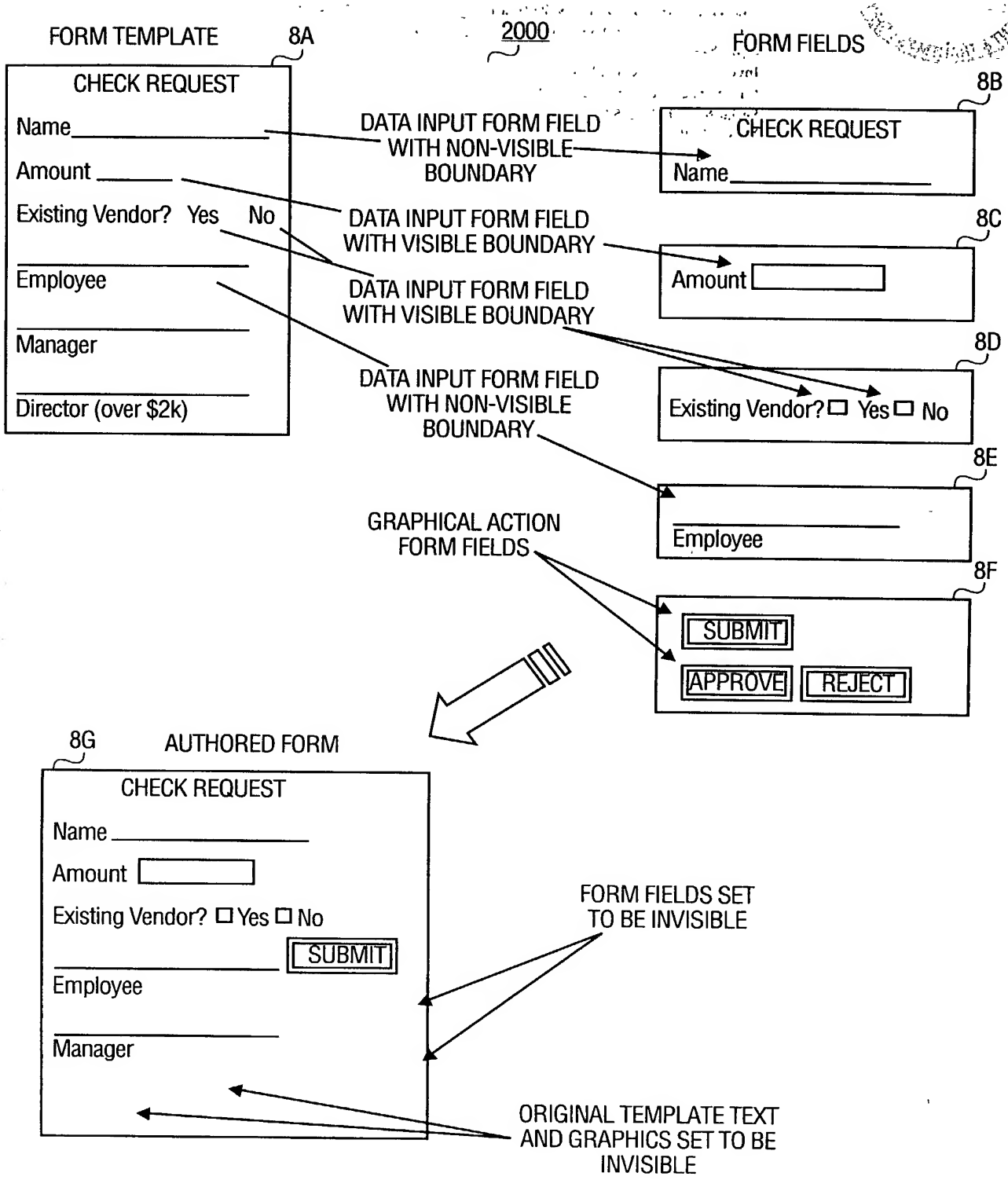


FIG. 6

10082533 .052002

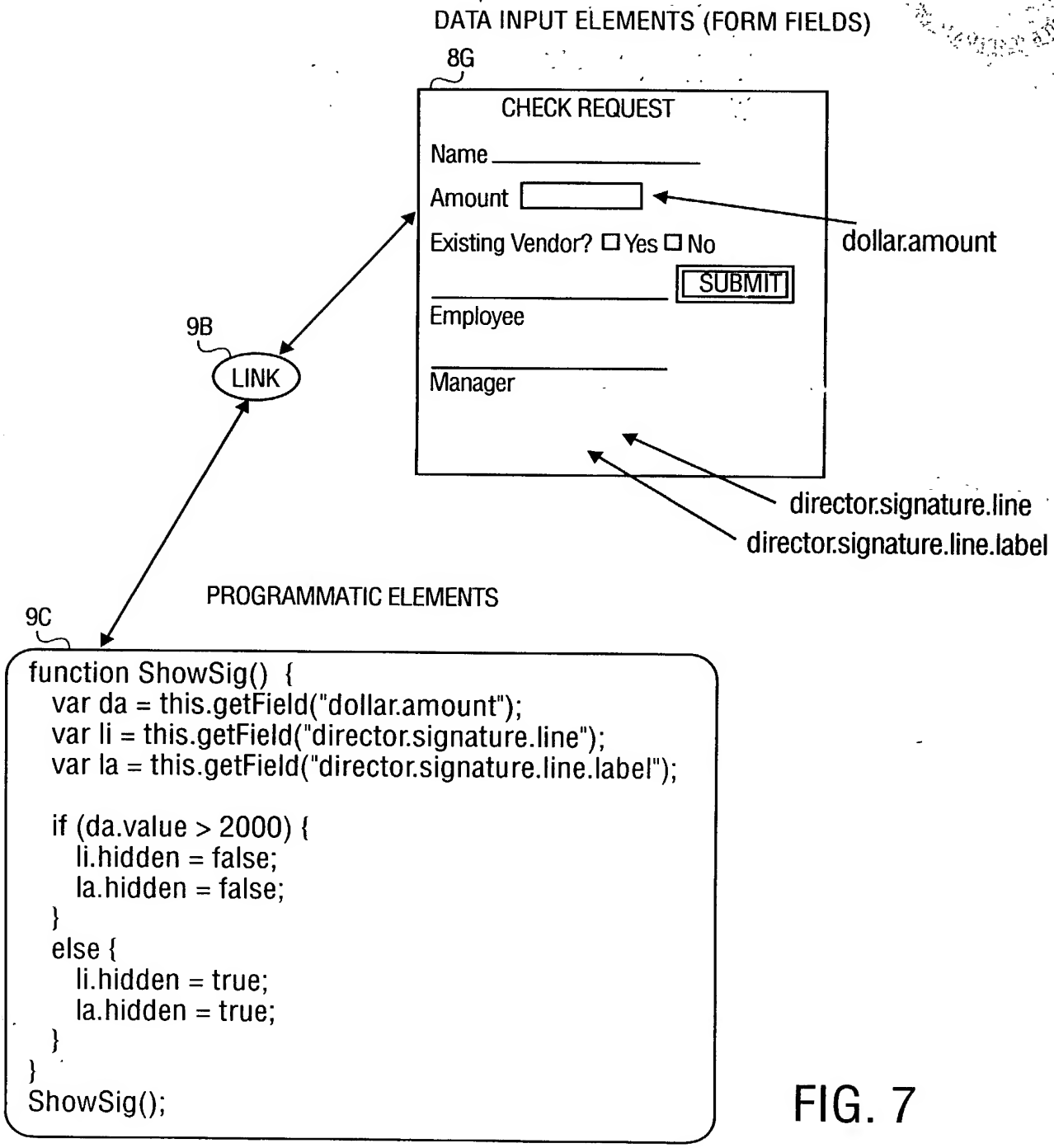


FIG. 7

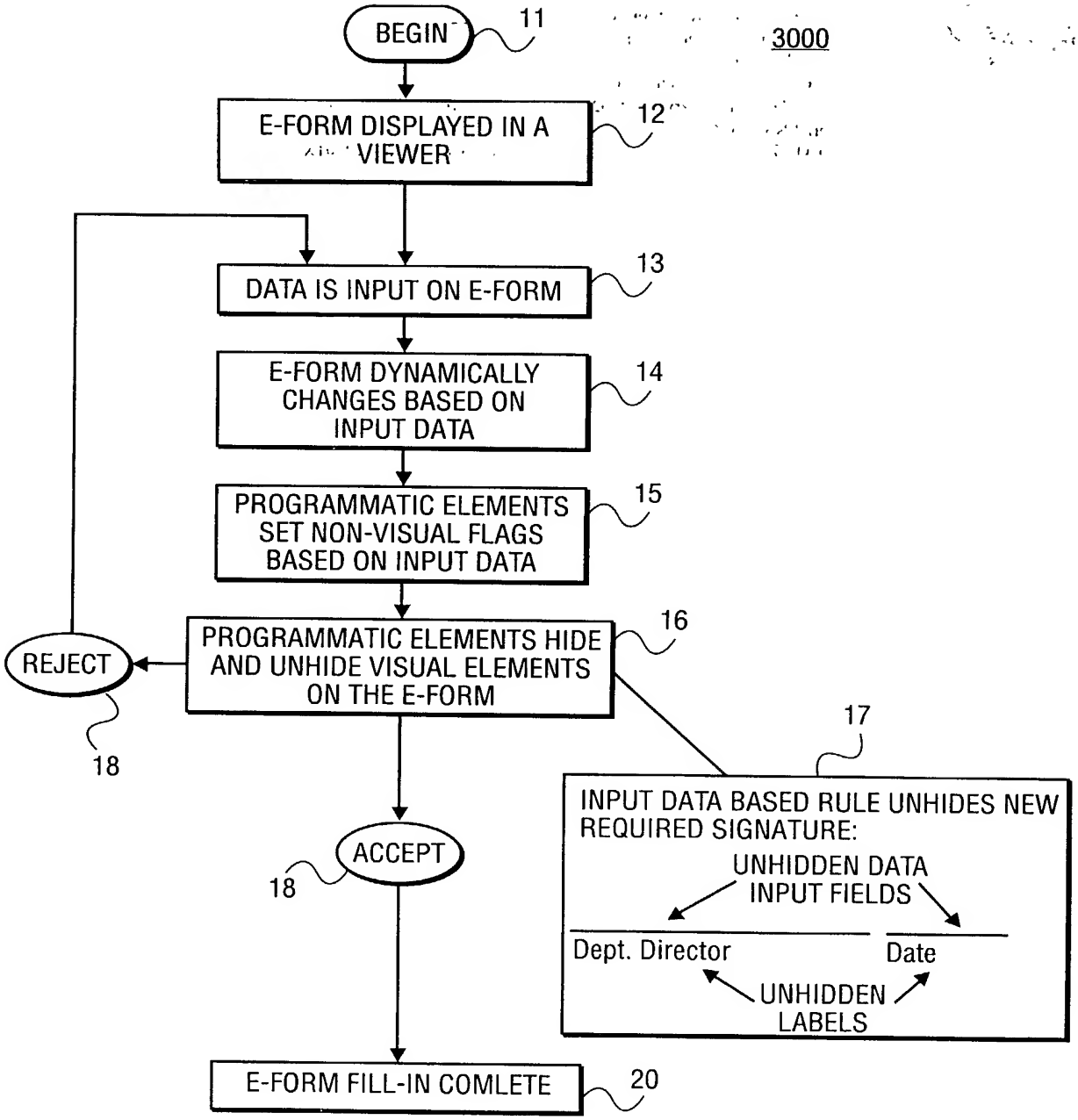

BEGIN
11
3000
E-FORM DISPLAYED IN A VIEWER
12
DATA IS INPUT ON E-FORM
13
E-FORM DYNAMICALLY CHANGES BASED ON INPUT DATA
14
PROGRAMMATIC ELEMENTS SET NON-VISUAL FLAGS BASED ON INPUT DATA
15
PROGRAMMATIC ELEMENTS HIDE AND UNHIDE VISUAL ELEMENTS ON THE E-FORM
16
REJECT
18
17
INPUT DATA BASED RULE UNHIDES NEW REQUIRED SIGNATURE:
UNHIDDEN DATA INPUT FIELDS
Dept. Director
Date
UNHIDDEN LABELS
ACCEPT
18
E-FORM FILL-IN COMLETE
20

FIG. 8

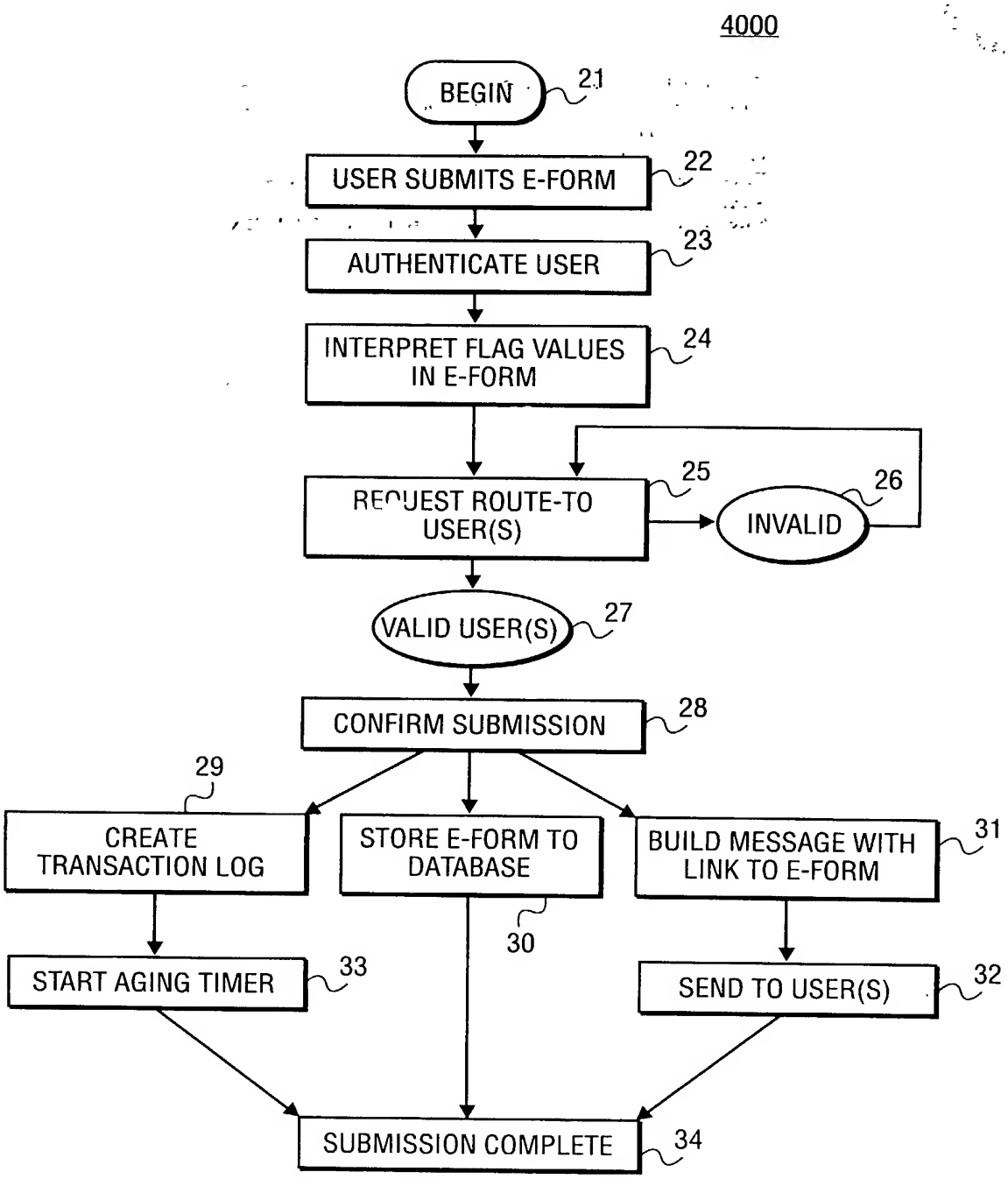

4000
BEGIN
21
USER SUBMITS E-FORM
22
AUTHENTICATE USER
23
INTERPRET FLAG VALUES IN E-FORM
24
REQUEST ROUTE-TO USER(S)
25
INVALID
26
VALID USER(S)
27
CONFIRM SUBMISSION
28
29
CREATE TRANSACTION LOG
STORE E-FORM TO DATABASE
30
BUILD MESSAGE WITH LINK TO E-FORM
31
START AGING TIMER
33
SEND TO USER(S)
32
SUBMISSION COMPLETE
34

FIG. 9

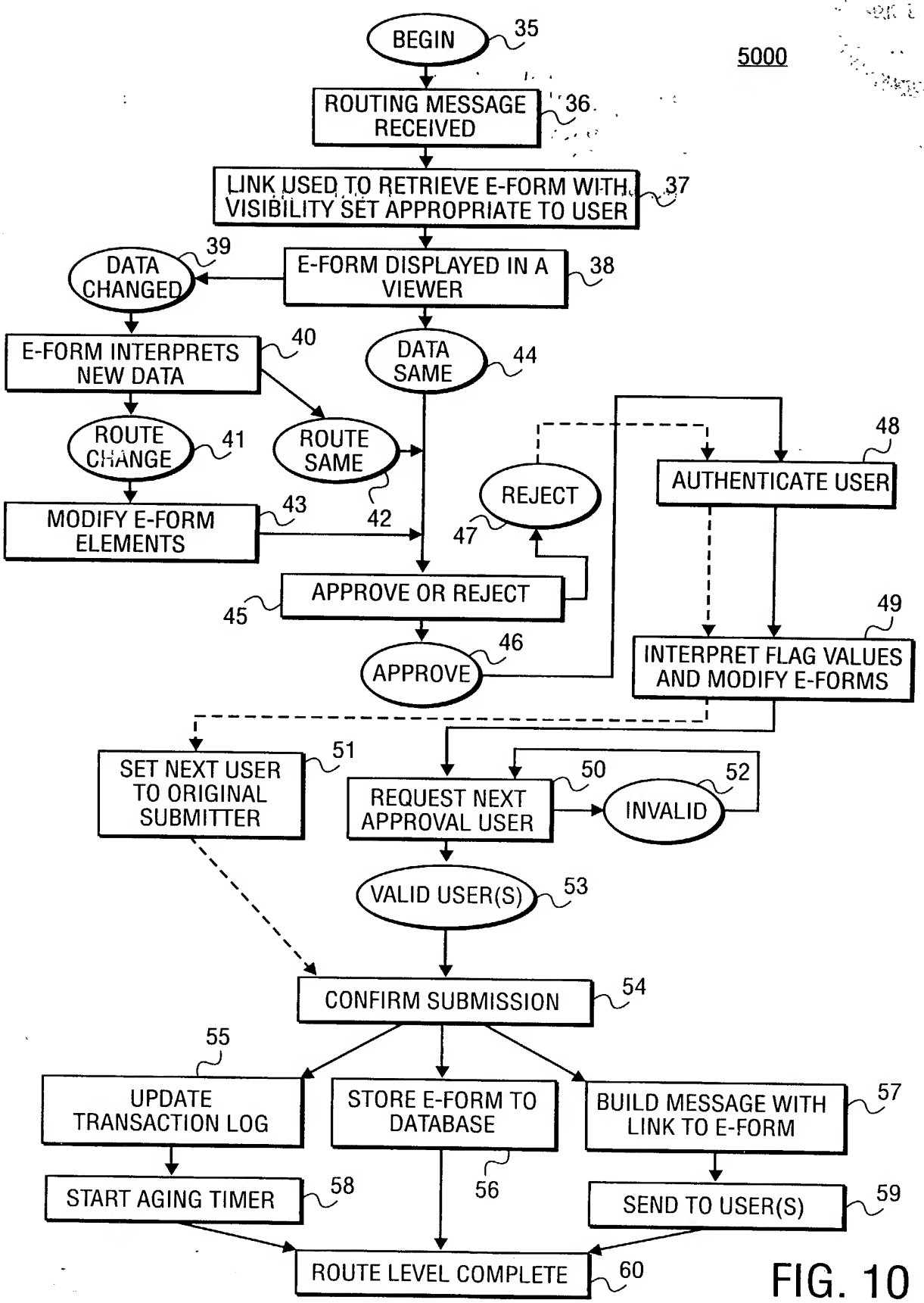

5000
BEGIN
35
ROUTING MESSAGE RECEIVED
36
LINK USED TO RETRIEVE E-FORM WITH VISIBILITY SET APPROPRIATE TO USER
37
E-FORM DISPLAYED IN A VIEWER
38
DATA CHANGED
39
DATA SAME
44
E-FORM INTERPRETS NEW DATA
40
ROUTE CHANGE
41
ROUTE SAME
42
MODIFY E-FORM ELEMENTS
43
REJECT
47
AUTHENTICATE USER
48
APPROVE OR REJECT
45
APPROVE
46
INTERPRET FLAG VALUES AND MODIFY E-FORMS
49
SET NEXT USER TO ORIGINAL SUBMITTER
51
REQUEST NEXT APPROVAL USER
50
INVALID
52
VALID USER(S)
53
CONFIRM SUBMISSION
54
UPDATE TRANSACTION LOG
55
STORE E-FORM TO DATABASE
56
BUILD MESSAGE WITH LINK TO E-FORM
57
START AGING TIMER
58
SEND TO USER(S)
59
ROUTE LEVEL COMPLETE
60

FIG. 10

10082533 .052902

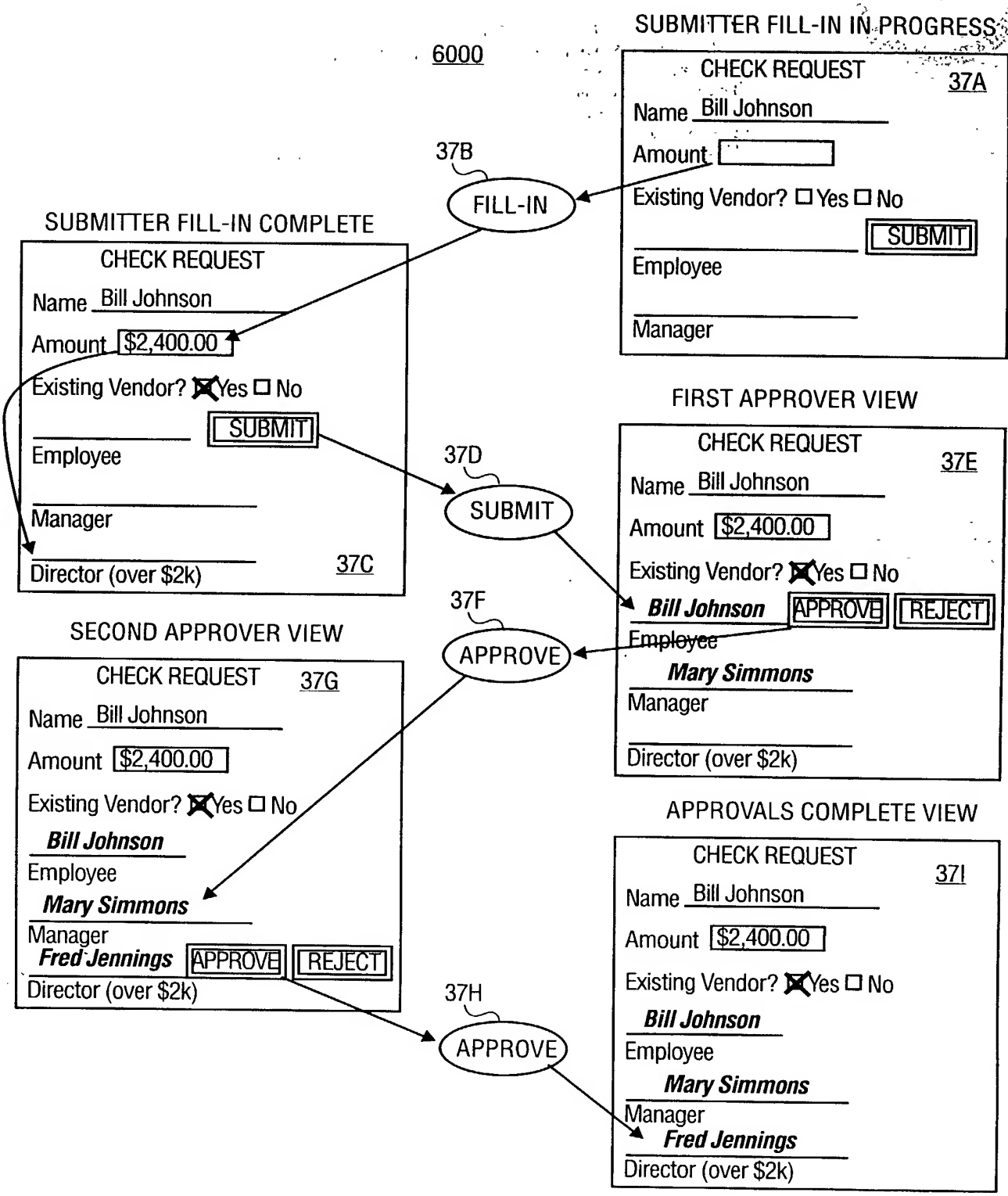


FIG. 11

	Name	Signature	Date
Submitted by:			
CC Manager(s):			
Product Line Controller:			
Director:			
Controller:			
Director:			
Sr. Director:			
Vice President:			
EVP/SVP/CFO:			
President:			

TYPICAL FORM BASED SIGNATURE (APPROVAL ROUTING) LIST

FIG. 12

1006252 - 052902

1300

Userid	Process Type	Title From	Title To	User To	Time Stamp	Action
bsmith	Expense Report	Submitter	Manager	janderson	11/2/01-13:23:34	Submit
bsmith	Travel Authorization	Submitter	Manager	janderson	11/21/01-09:32:18	Submit
bsmith	Expense Report	Submitter	Manager	janderson	12/3/01-10:03:43	Submit
bsmith	Expense Report	Submitter	Manager	jparker	12/14/01-16:15:04	Submit
bsmith	ECO	Manager	Engineering Dir	smiller	12/15/01-11:07:24	Approve
bsmith	Travel Authorization	Submitter	Manager	jparker	12/18/01-12:12:36	Submit

PROCESS ROUTING KNOWLEDGE BASE (PRKB) STRUCTURE

FIG. 13

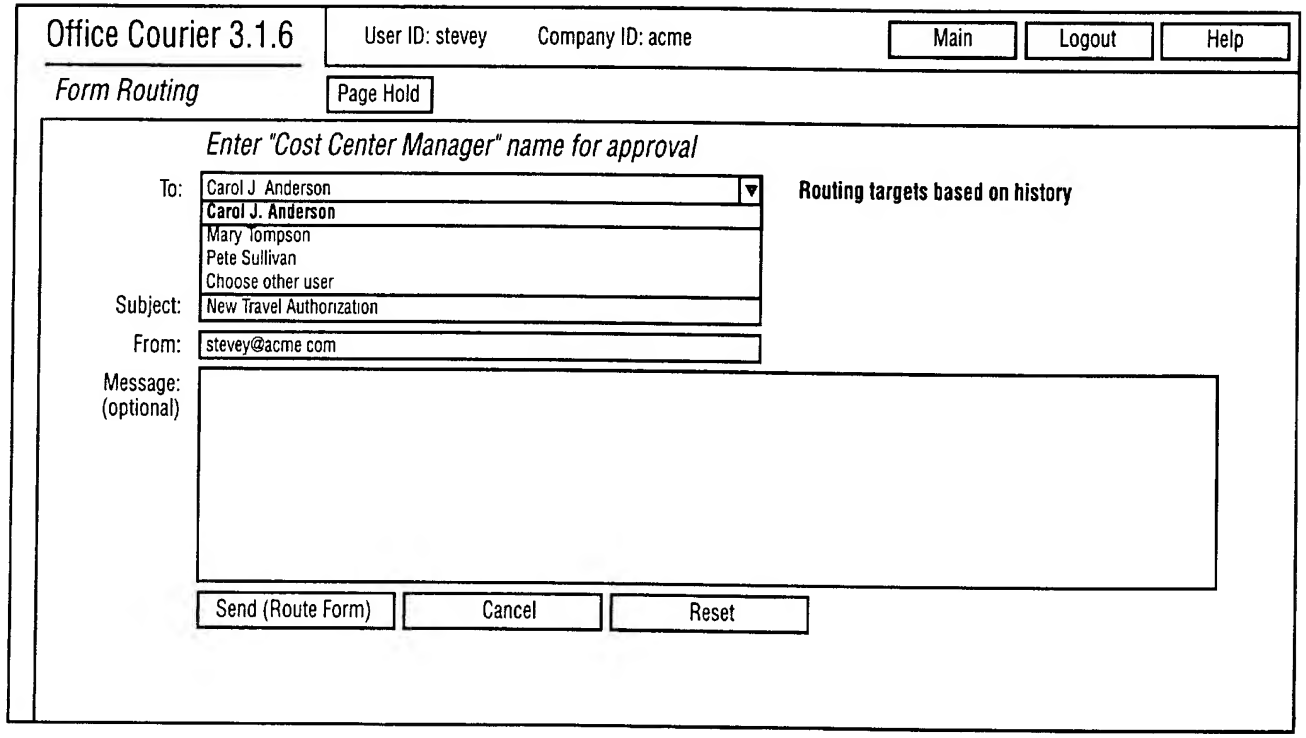

Office Courier 3.1.6
User ID: stevey
Company ID: acme
Main
Logout
Help
Form Routing
Page Hold
Enter "Cost Center Manager" name for approval
To:
Carol J Anderson
Carol J. Anderson
Mary Tompson
Pete Sullivan
Choose other user
Routing targets based on history
Subject:
New Travel Authorization
From:
stevey@acme com
Message:
(optional)
Send (Route Form)
Cancel
Reset

FIG. 14

10082533.052002

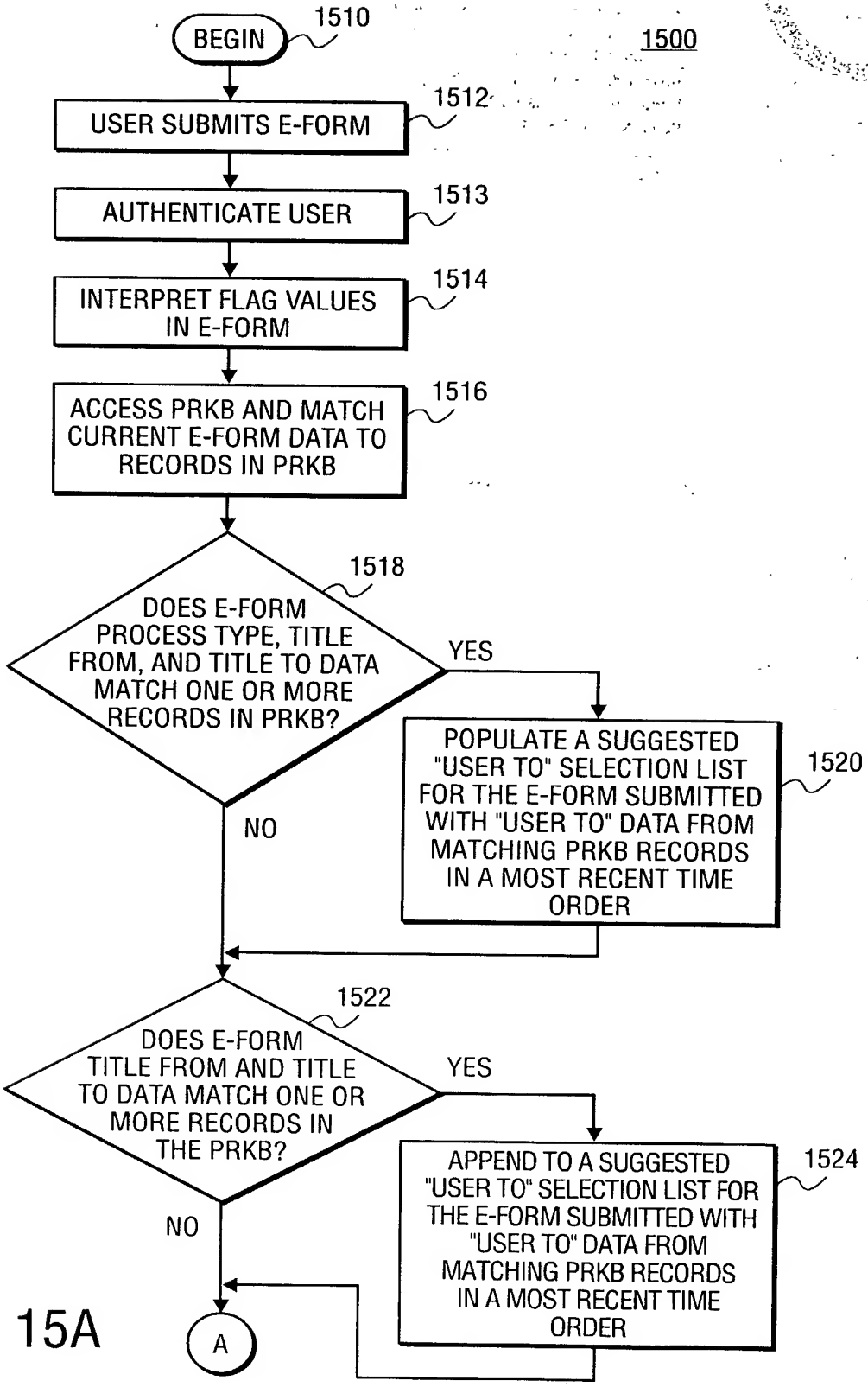


FIG. 15A

10082513 .052902

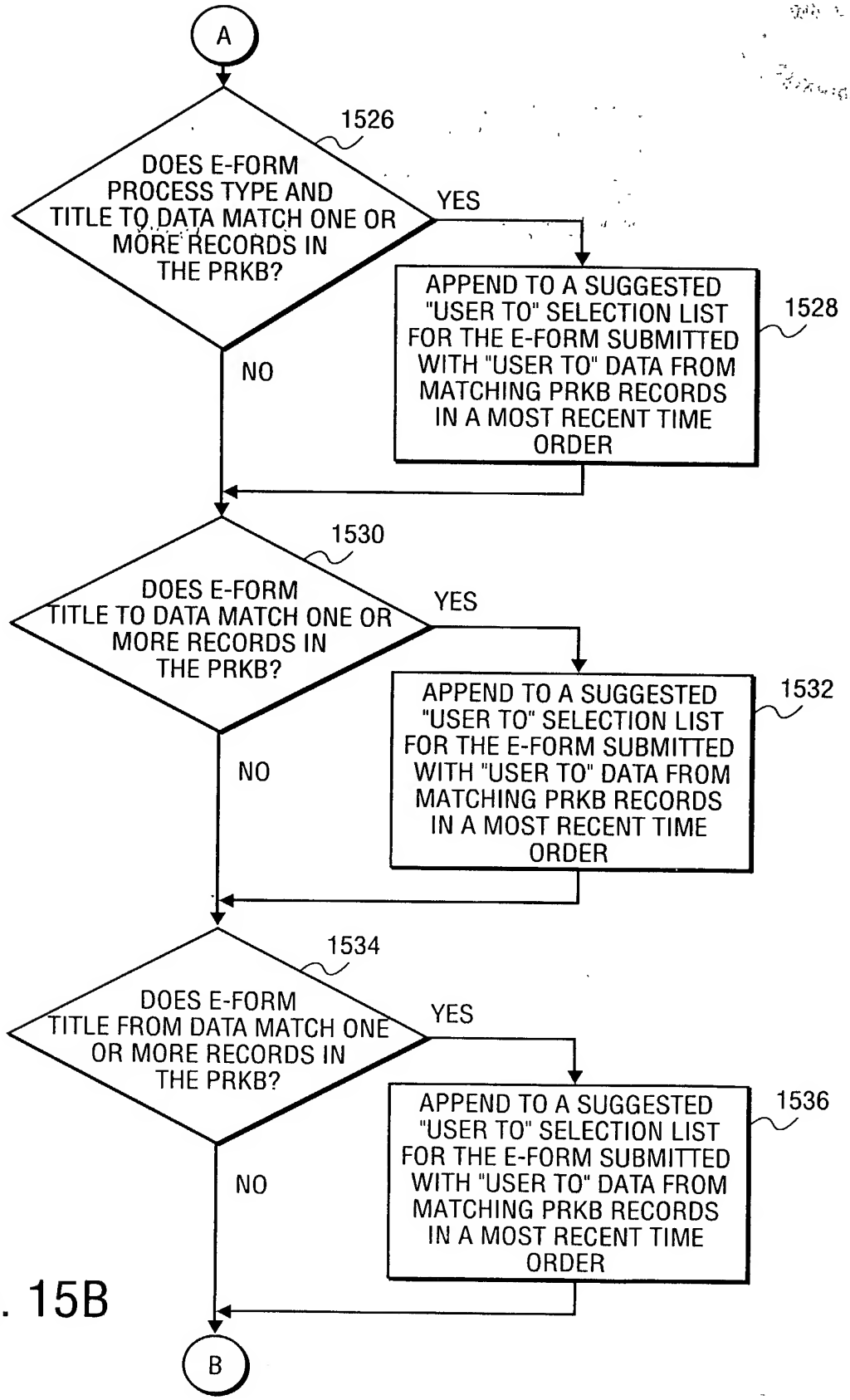


FIG. 15B

10082533 .052902

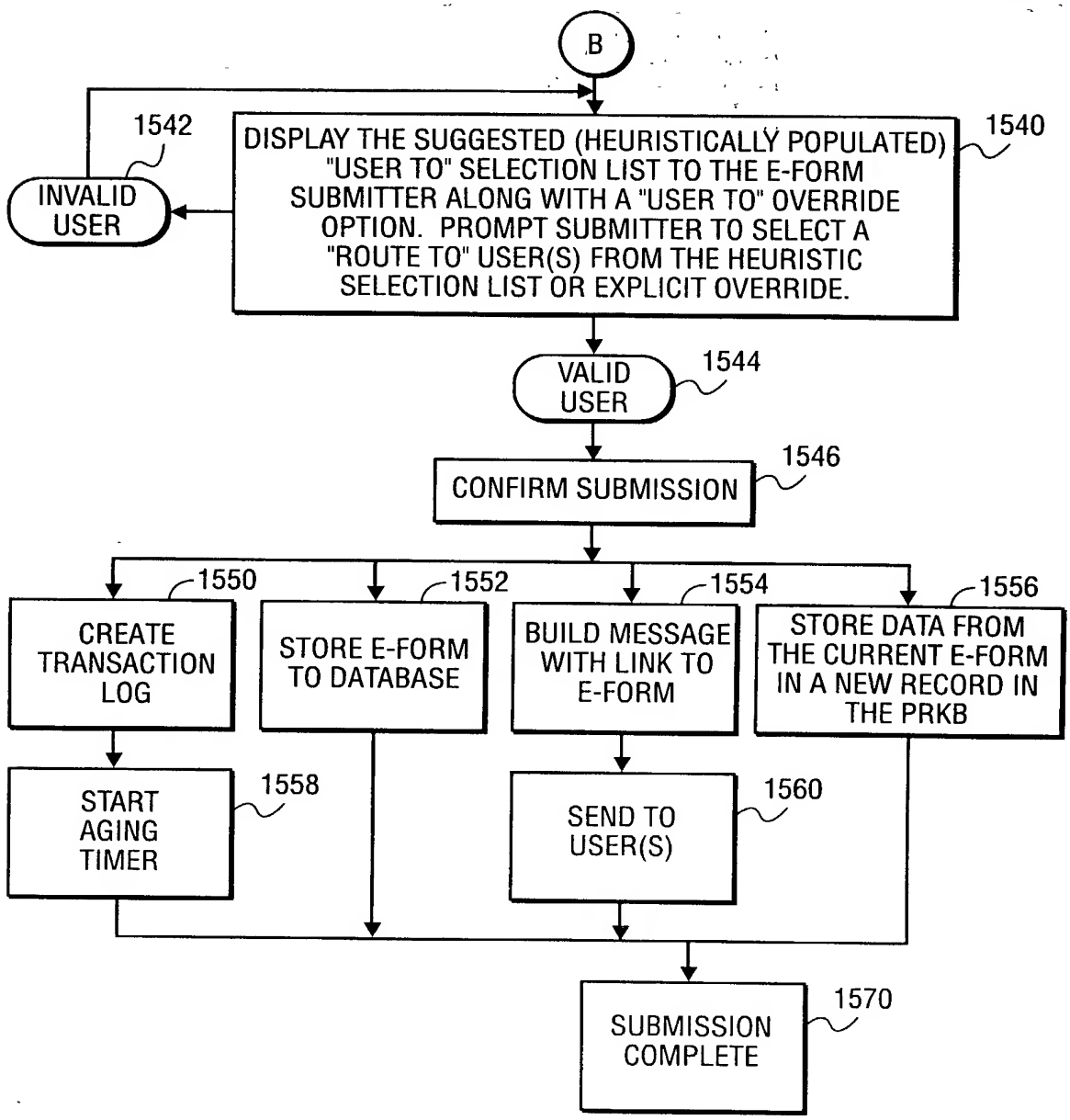


FIG. 15C

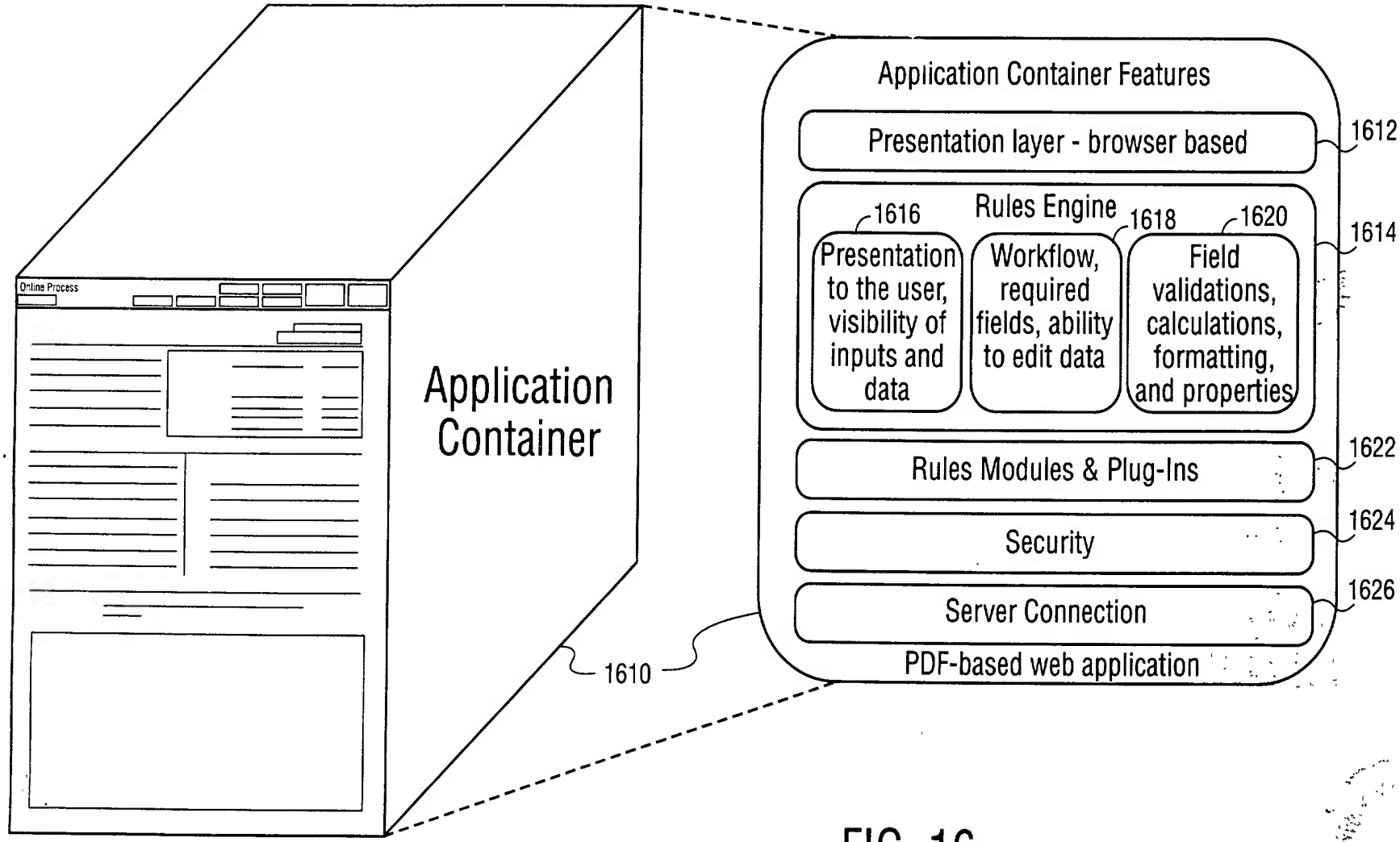
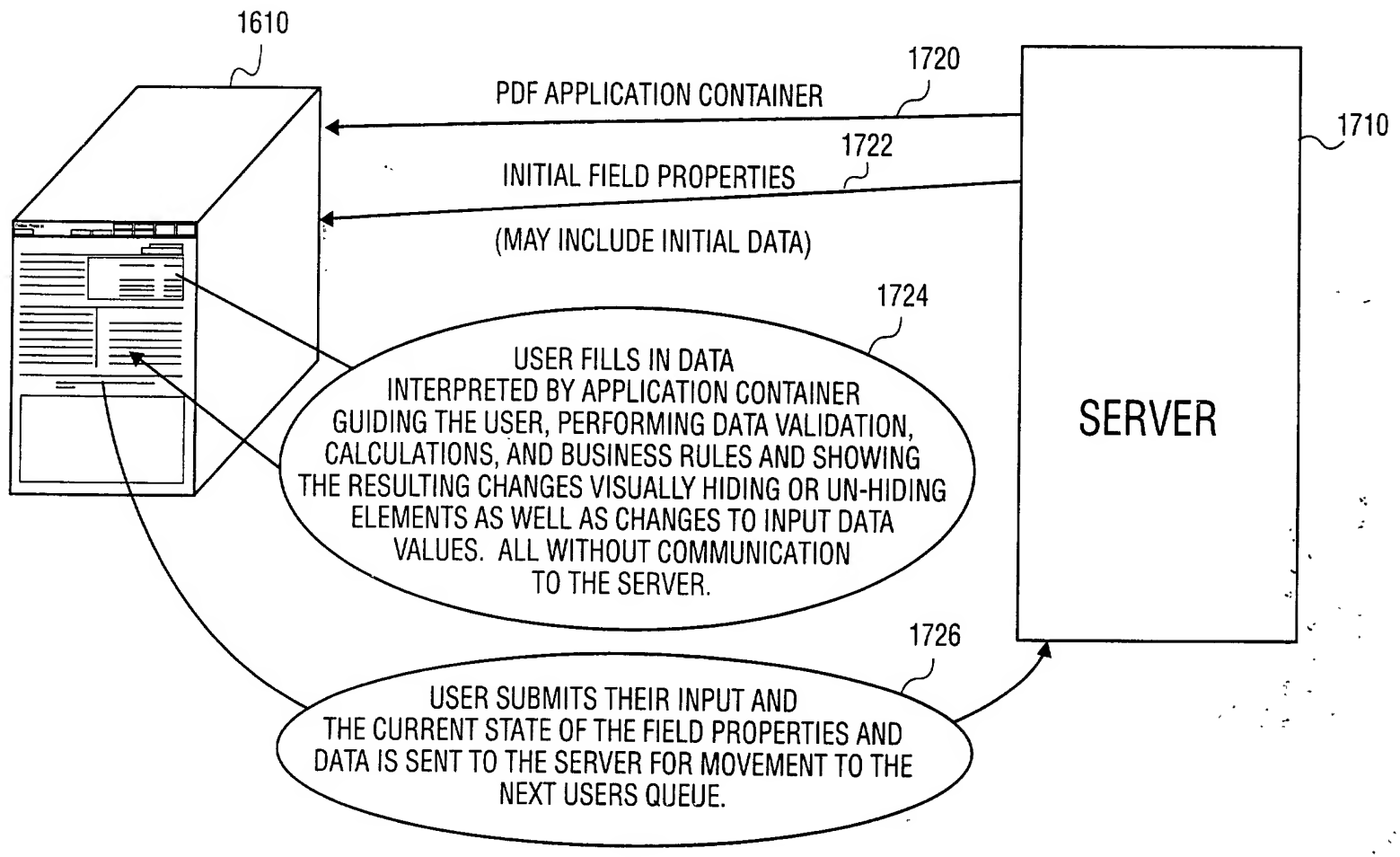

Online Process
Application Container
1610
Application Container Features
Presentation layer - browser based
1612
Rules Engine
1616
1618
1620
1614
Presentation to the user, visibility of inputs and data
Workflow, required fields, ability to edit data
Field validations, calculations, formatting, and properties
Rules Modules & Plug-Ins
1622
Security
1624
Server Connection
1626
PDF-based web application

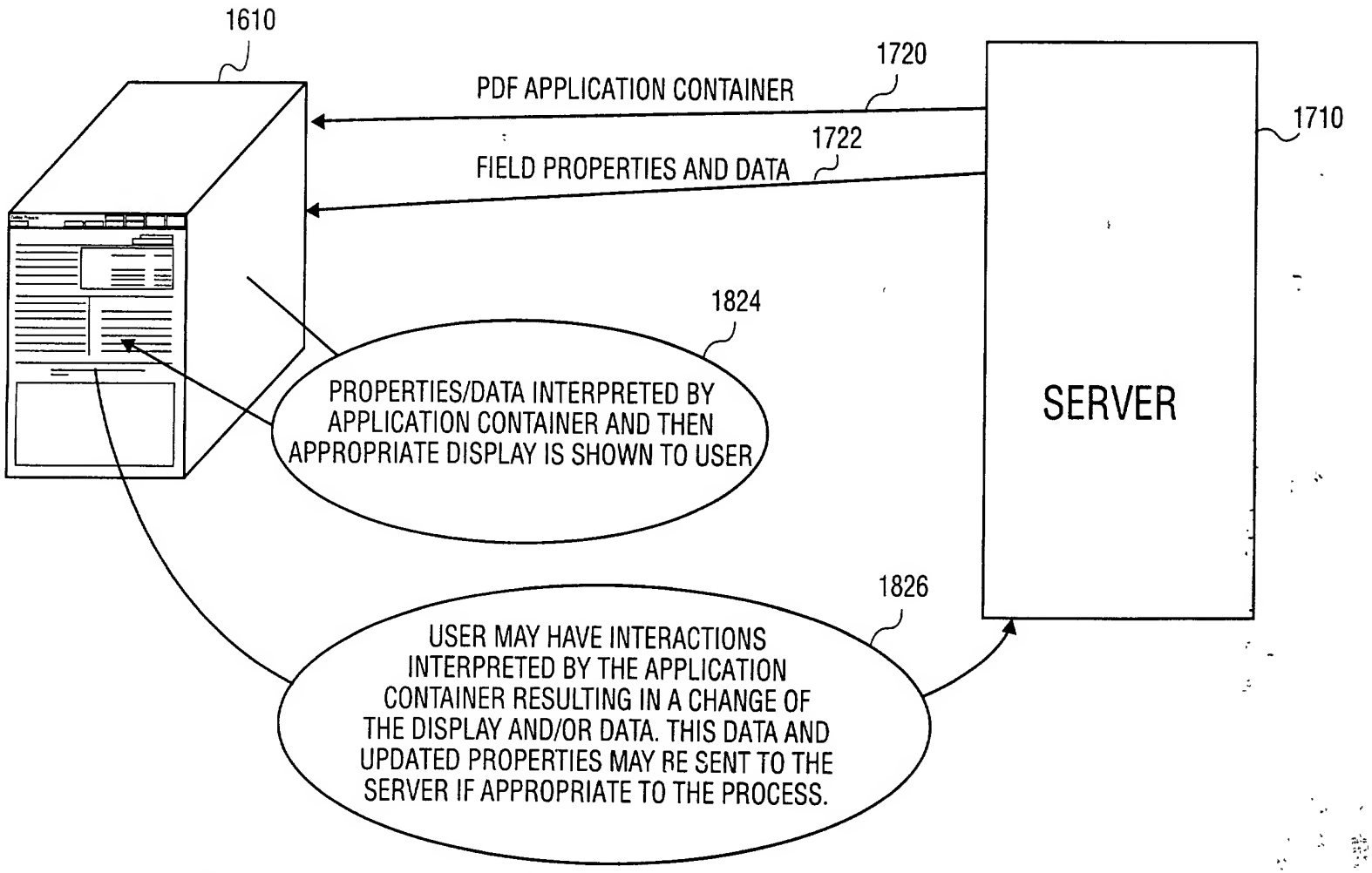
FIG. 16



DELIVER APPLICATION CONTAINER IN A PRE-SUBMISSION STATE BASED ON USER REQUESTING TO START A NEW PROCESS

FIG. 17

POST INITIAL PROCESS SUBMISSION SCENARIO



DELIVER APPLICATION CONTAINER AND DATA TO DOWNSTREAM USERS - ROUTED TO EITHER BY RULES OR BY INITIATING USER INPUT

FIG. 18